Docket No. 372106-102
US App. No. 10/616,731

REMARKS

Claims 1-33 are currently pending in this application. Claims 1-16 and 21-29 have been withdrawn from consideration. Claims 17 and 30 have been amended. No new matter has been added. Support for the amended claims can be found in the specification on page 24, lines 21-23 and on page 29, line 25 through page 30, line 11. No new issues have been raised by the current amendment since the amendment simply inserts a limitation into the claims that the Examiner has already discussed.

The following remarks put the pending claims in condition for allowance. Applicants respectfully request reconsideration and the timely allowance of the pending claims.

35 USC § 102(e) Rejection by Yamada et al. or Kurosawa et al.

Claims 17 and 30 stand rejected under 35 U.S.C. §102(e) as being anticipated by Yamada et al., U.S. Patent No. 6,737,118, (hereinafter "Yamada") or in the alternative by Kurosawa et al., U.S. Patent No. 6,410,151, (hereinafter "Kurosawa").

Applicants respectfully traverse this rejection. The Office states that the "specification fails to establish an inherent difference in the film claimed and that in the prior art." Applicants respectfully disagree. The Office's attention is directed to page 23, line 21 through page 24, line 5 of the specification. I this passage it is disclosed that by heating coating film at a temperature over 600 °C in a reduced oxygen concentration environment, decomposition of an organic group bonded to a silicon atom is suppressed and the resulting film exhibits improved resistance to hydrofluoric acid (HF) etching. On page 24, lines 21-23, it is disclosed that the baking temperature range is preferably from 600 to 750°C, more preferably from 650 to 750°C, and most preferably from 680 to 720°C. Thus, in the specification it is disclosed that by baking the film at an elevated temperature, such as from about 680 to about 750°C, as is claimed, the film exhibits improved resistance to HF etching compared to the prior art films that are prepared at lower baking temperatures.

In further support, it is disclosed at page 25, lines 1-11 that as the baking temperature increases, the denseness of the film is increased and the resistance to HF of the resulting silica-based organic film is improved. Furthermore, degassing due to atmospheric temperature increase is suppressed. This is clearly in comparison to baking at 600°C, the temperature at which the organic group normally decomposes when heated in a normal oxygen concentration as disclosed at lines 21-24 of page 23 of the specification. Thus this clearly establishes that as the temperature is increased above 600° C, properties of the resulting film are improved. Accordingly, the Office's statement that "'becomes higher' is relative and it is unclear if this means higher compared to, for instance, 650°C or higher compared to, for instance, 200°C" is respectfully traversed, since the context of the phrase clearly establishes that this is relative to 600°C. It is further disclosed at page 25 that organic group decomposition occurs at baking temperatures above 750°C even in reduced oxygen concentration atmospheres and that therefore the upper limit of the baking temperature is about 750°C.

Further, at page 30, lines 2-11, it is disclosed that "as the baking temperature raises, the organic group content of the silica-based organic film 5 tends to decrease. With respect to the resistance to hydrofluoric acid, an influence of the baking temperature is larger than that of the organic group content. Therefore, the lower limit of the etching rate is about 15 angstroms/min at the baking temperature of 700°C and is about 40 angstroms/min at 600°C. Therefore, the baking temperature is more preferably about 700°C (680°C to 720°C)." This clearly shows that improved etching properties are obtained at an elevated temperature of 700°C compared to the normal limit of 600°C.

In contrast, Yamada, at the top of column 13 of the specification, teaches that the coated film is first dried and subsequently subjected to a heat treatment at a temperature of 350°C to 650° C in a furnace that has an oxygen concentration of no greater than 100 ppm. Yamada states that if the heat treatment temperature is above 650 °C, all of the organic groups will decompose, so that the moisture adsorption will increase considerably and the relative dielectric constant will be raised by hydroxyl groups in the film. The Examples of Yamada only show heat treatments at 450 °C. Kurosawa discloses a heat treatment of silica based film "at temperature of 450°C or lower" (see

column 13, line 13 through column 14, line 62 and Examples 1 and 2 of the specification). Thus, both Yamada and Kurosawa fails to teach a silica-based organic film obtained by baking a coating film at an elevated temperature of between about 680°C and 750°C, as is claimed. As described above, the specification discloses that a baking temperature of 600°C, preferably 650°C rather than 600°C, more preferably 680°C rather than 650°C provides an improved resistance to hydrofluoric acid of the resulting silica-based organic film. Thus, a film baked at 680°C and above (limited by decomposition at 750°C) would exhibit improved resistance to hydrofluoric acid compared to the film of Yamada which teaches baking at an upper limit of 650°C and only provides examples at 450°C, and the film of Kurosawa which is baked at 450° or lower. As such, the specification of the instant application establishes an inherent difference between the film claimed and the prior art. Hence, Applicants respectfully request the withdrawal of the rejection based on Yamada or Kurosawa.

35 USC § 103(a) Rejection over Yamada et al. or Kurosawa et al.

Claim 18-20 and 31-33 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Yamada or Kurosawa or, in the alternative under 35 U.S.C. § 103(a) for allegedly being unpatentable over Yamada or Kurosawa.

As discussed above, neither Yamada nor Kurosawa teaches or suggests all the limitations of claims 17 or 30. Thus, claims 18-20 and 31-33 are patentable over the prior art for at least these reasons. Accordingly, Applicants respectfully request the withdrawal of the rejections under 102 or 103 of these claims.

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CONCLUSION

Applicants believe this response to be a full and complete response to the Office Action. In view of the foregoing, Applicants respectfully request reconsideration and allowance of claims 17-20 and 30-33. As the application is believed to be in condition for allowance, Applicants respectfully request a Notice of Allowability. The Examiner is invited to contact the undersigned representative should any further issues arise

Respectfully submitted,

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